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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,722	09/18/2001	Kenneth A. Peterson	SD6436. 1/S97675	1517

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EXAMINER	
LEE, EUGENE	
ART UNIT	**PAPER NUMBER**
2815	

DATE MAILED: 04/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/955,722	PETERSON ET AL.	
	Examiner	Art Unit	
	Eugene Lee	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,17-30 and 35-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,17-30 and 35-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 thru 14, 17 thru 27, and 35 thru 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kao et al. 5,923,995 in view of Wu et al. "Interface-Adhesion-Enhanced Bi-layer Conformal Coating for Avionics Application". Kao discloses (see, for example, FIGURE 2C) a wafer 300 comprising micromechanical systems (sensitive area) 310, and protective layer (temporary protective coating) 320. In FIGURE 2D, Kao shows the wafer being diced and the water insoluble protective layer subsequently removed. In step 570 of FIGURE 5, Kao discloses that bond pads connect to the leads of a lead frame. Also see, for example, column 7, lines 34-44. Kao does not disclose the protective coating as being insoluble in organic solvents. However, Wu discloses a protection for sensors wherein a protective coating made of parylene C (insoluble in organic solvents) is used to protect a sensitive device. In the abstract, Wu teaches that such a protective coating protects a MEMs device from adverse environmental conditions. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use parylene (protective coating being insoluble in organic solvents) in order to protect the micromechanical systems of Kao.

Regarding claims 10-14, 17, and 19, Kao discloses the claimed invention except for the specific materials of the protective coating that protect a sensitive area on a wafer. Kao simply

states the material used to protect the micromechanical system "may be composed of any substantially insoluble material known to those of ordinary skill in the art." See column 5, lines 1-5. The use of conventional materials to perform their known functions in a conventional process is obvious. *In re Raner* 134 USPQ 343 (CCPA 1962). Kao teaches that any conventional material can be used that is known to be capable of protecting underlying layers, which could include any of those materials listed in claims 10-14, 17 and 19. Furthermore, as chemical composition of the protective layer does not seem to be critical to the invention, it must be shown that any one or all of the listed materials yield an **unexpected** product or result. *In re Margolis* 228 USPQ 940 (Fed. Cir. 1986); *In re Kirsch* 182 USPQ 286 (CCPA 1974); *In re Suether* 181 USPQ 36 (CCPA 1974); *In re Costello* 178 USPQ 290 (CCPA 1973); *In re Von Schickh* 150 USPQ 300 (CCPA 1966); *In re Sussman* 60 USPQ 538 (CCPA 1944); *In re Kaplan* 45 USPQ 175 (CCPA 1940).

3. Claims 1, 7 thru 14, 17 thru 19, 21 thru 27, and 35 thru 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Degani et al. 5,516,728 in view of Wu et al. "Interface-Adhesion-Enhanced Bi-layer Conformal Coating for Avionics Application". Degani discloses (see, for example, FIG. 2) a substrate (wafer) 10 comprising a device (sensitive area) 20 and protective coating 65 formed thereon. The wafer is subsequently diced and the protective coating remains on the substrate during the dicing process. The protective coating itself is removed from the substrate after the dicing process. Degani does not disclose the protective coating as being insoluble in organic solvents. However, Wu discloses a protection for sensors wherein a protective coating made of parylene C (insoluble in organic solvents) is used to protect

a sensitive device. In the abstract, Wu teaches that such a protective coating protects a MEMs device from adverse environmental conditions. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use parylene (protective coating being insoluble in organic solvents) in order to protect the device of Degani.

4. Claims 1 thru 14, 17 thru 19, 21 thru 27, and 35 thru 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaeriyama et al. 5,872,046 in view of Wu et al. "Interface-Adhesion-Enhanced Bi-layer Conformal Coating for Avionics Application". Kaeriyama discloses (see, for example, FIG. 1) a semiconductor wafer 10 comprising a resist layer (temporary protective layer) 20 and micromechanical structures (sensitive area) 16. In FIG. 3, Kaeriyama discloses the wafer as being diced (step 42) and the resist layer subsequently removed (see, for example, column 6, lines 54-60). In column 5, lines 61-65, Kaeriyama discloses the structures 16 could be accelerometers, micromotors, or for use in biological or chemical sensors. Kaeriyama does not disclose the protective coating as being insoluble in organic solvents. However, Wu discloses a protection for sensors wherein a protective coating made of parylene C (insoluble in organic solvents) is used to protect a sensitive device. In the abstract, Wu teaches that such a protective coating protects a MEMs device from adverse environmental conditions. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use parylene (protective coating being insoluble in organic solvents) in order to protect the micromechanical structures of Kaeriyama.

5. Claims 28 thru 30, 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kao '995 as applied to claims 1-14, 17-27, and 35-42 above, and further in view of Smith et al. 5,766,367. Kao does not disclose a performance-enhancing coating disposed on the released MEMS element. However, Smith discloses (see abstract) applying a chemical species (performance-enhancing coating) to micromechanical structures in order to prevent adhesion with other objects. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include the chemical species (performance-enhancing coating) to the micromechanical system of Kao in order to prevent the device from adhering to other objects.

Product-by-Process Limitations

6. While not objectionable, the Office reminds Applicant that "product by process" limitations in claims drawn to structure are directed to the product, per se, no matter how actually made. *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also. *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wethheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al.*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or *otherwise*. Note that applicant has the burden of proof in such cases, as the above case law makes clear. Thus, no patentable weight will be given to those process steps, which do not add structural limitations to the final product.

In the claims, the applicant states a **temporary** protective coating, however, this structure is **not** part of the final product, but is only an intermediate structure used to form a final product of a sensitive area on a wafer. The temporary protective coating does not add any structural limitations to the sensitive area but only serves as a protective structure while the wafer is being formed. See, for example, FIG.-1D wherein applicant shows the final product of a sensitive area 12 on a device 10. The temporary coating is removed and therefore only serves as a method step to forming the final structure.

Response to Arguments

7. Applicant's arguments with respect to claims 1-14, 17-30, and 35-44 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

INFORMATION ON HOW TO CONTACT THE USPTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugene Lee whose telephone number is 703-305-5695. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 703-308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Eugene Lee
April 11, 2003

SHEILA V. CLARK
PRIMARY EXAMINER